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EXAMINER

SHEN, KEZHEN

ART UNIT	PAPER NUMBER
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2627

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,218	Applicant(s) MIJRITSKII ET AL.	
	Examiner Kezhen Shen	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1,7 and 9 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. US 6,381,208 B1 in view of Gurer et al. US 6,177,133 B1 and Moynagh US 5,810,941.

Regarding claim 1, Abe et al. teach an optical record carrier for use in an optical scanning device (Fig. 1), the optical record carrier comprising an entrance face (6 of Fig. 1, Col 3 Lines 56-67), an information layer (3 and 5 of Fig. 1, Col 3 Lines 56-67) and at least one transparent layer (2 and 4 of Fig. 1, Col 3 Lines 56-67), located between the entrance face and the information layer (Fig. 1), through which data is to be read from the information layer (Col 5 Lines 29-35), wherein the information layer includes a relief structure holding data in read-only form (11 of Fig. 3, Col 4 Lines 7-34 the embossed areas is considered read-only), characterized in that the data held in the relief structure includes a thickness variation profile comprising thickness variation data indicative of a variation in the thickness of the optical record carrier between the

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entrance face and the information layer (Col 4 Lines 35-63), in the thickness of the at least one transparent layer (Col 3 Lines 63-67) which is characterized in advance (Col 4 Lines 21-35). Abe et al. fail to teach said thickness variation profile being determined based on a given lacquer formulation of said transparent layer and a rotational speed in creation of said transparent layer and stamped onto the relief structure at a time of manufacture of the optical record carrier.

However, Gurer et al. does. Gurer et al. teach the method of calculating thickness of a spin coat given rotational speed and lacquer formulation (Col 5 Lines 18-67). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of the optical record carrier as taught by Abe et al. with the teachings of the method of defining critical dimensions to calculate thickness during spin coating process as taught by Gurer et al. as a whole to define the thickness variation profile based on lacquer formulation and rotational speed in the process of creating the transparent layer for the benefit of forming a layer with a target thickness (Gurer et al. Col 5 Lines 50-67). Abe et al. and Gurer et al. both fail to teach a stamping method to form the thickness variation profile.

However, Moynagh does. Moynagh teaches the optical disc to be formed by a mastering process using a stamper (Col 1 Lines 16-42). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of the optical record carrier as taught by Abe et al. and Gurer et al. with the teachings of the method of stamping information into the optical disc as taught by Moynagh as a whole to

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implement a stamper to form a disc with specific pit structure for the benefit of producing discs with a high degree of accuracy and repeatability (Moynagh Col 1 Lines 16-20).

Regarding claim 2, Abe et al. teach an optical record carrier according to claim 1, wherein said data held in the relief structure includes data indicating a thickness profile in terms of a set of thickness data, each item in the set being indicative of a thickness deviation at a different one of a plurality of locations across the entrance face (Col 3 Lines 63-67 Col 4 Lines 35-53).

Regarding claim 3, Abe et al. teach an optical record carrier according to claim 1, wherein said data held in the relief structure includes data indicating a thickness profile comprising a set of thickness function parameters which, when combined using a predetermined algorithm, provide a function indicative of a thickness profile across the entrance face (Col 4 Line 47 – Col 5 Line 4 and Col 7 Lines 24-39 and Lines 40-48 the thickness profile is calculated then saved to ROM where the aberration adjusting actuator can read the data and adjust the lens).

Regarding claim 4, Abe et al. teach an optical record carrier according to claim 1, wherein said relief structure comprises a pit/land structure holding the thickness variation data (Col 4 Lines 21-34).

Regarding claim 6, Abe et al. teach an optical record carrier according to claim 1, wherein the record carrier is in the form of a disc, and the thickness variation data indicates a radial thickness profile (Fig. 3, Col 4 Lines 7-34).

Regarding claim 7 Abe et al. teach a method of scanning an optical record carrier in an optical scanning device having an optical system capable of spherical aberration

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compensation (Fig. 5, Col 5 Lines 53-61), the optical record carrier comprising an entrance face (6 of Fig. 1, Col 3 Lines 56-67), an information layer (3 and 5 of Fig. 1, Col 3 Lines 56-67) and at least one transparent layer (2 and 4 of Fig. 1, Col 3 Lines 56-67), located between the entrance face and the information layer (Fig. 1), through which data is to be read from the information layer (Col 5 Lines 29-35), wherein the information layer includes a thickness variation profile comprising thickness variation data indicative of a variation in the thickness of the optical record carrier between the entrance face and the information layer (Col 4 Lines 35-63), of the at least one transparent layer (Col 3 Lines 63-67) which is characterized in advance (Col 4 Lines 21-35) and-contained within a relief structure holding said data in read-only form (11 of Fig. 3, Col 4 Lines 7-34 the embossed areas is considered read-only), the method including the optical scanning device reading the thickness variation data and adjusting the optical system when scanning across the entrance face to perform spherical aberration compensation based on the thickness variation data (Col 7 Lines 40-55 and Col 8 Lines 21-39), characterized in that the optical scanning device reads data held in the relief structure to obtain said thickness variation data (Col 7 Lines 15-24). Abe et al. fail to teach said thickness variation profile being determined based on a given lacquer formulation of said transparent layer and a rotational speed in creation of said transparent layer,

However, Gurer et al. does. Gurer et al. teach the method of calculating thickness of a spin coat given rotational speed and lacquer formulation (Col 5 Lines 18-67). Therefore, it would have been obvious to one of ordinary skill in the art to combine

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the teachings of the optical record carrier as taught by Abe et al. with the teachings of the method of defining critical dimensions to calculate thickness during spin coating process as taught by Gurer et al. as a whole to define the thickness variation profile based on lacquer formulation and rotational speed in the process of creating the transparent layer for the benefit of forming a layer with a target thickness (Gurer et al. Col 5 Lines 50-67).

However, Moynagh does. Moynagh teaches the optical disc to be formed by a mastering process using a stamper (Col 1 Lines 16-42). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of the optical record carrier as taught by Abe et al. and Gurer et al. with the teachings of the method of stamping information into the optical disc as taught by Moynagh as a whole to implement a stamper to form a disc with specific pit structure for the benefit of producing discs with a high degree of accuracy and repeatability (Moynagh Col 1 Lines 16-20).

Regarding claim 8, Abe et al. teach a method according to claim 7, in which the step of adjusting the optical system when scanning across the entrance face includes: evaluating the thickness variation data in accordance with a predetermined algorithm so as to generate thickness indicators for at least one of a plurality of selected locations across the entrance face (Col 7 Lines 24-39) converting the or each thickness indicator into data indicative of a spherical aberration compensation value in accordance with a predetermined conversion function (Col 7 Lines 40-48) and operating the optical scanning system in accordance with the spherical aberration compensation value so as

to compensate for spherical aberration at the or each selected location (Col 7 Line 65 – Col 8 Line 5).

Regarding claim 9, the limitations of the method of manufacturing have been analyzed and rejected with respect to the optical record carrier above in claims 1 and 7. Further Abe et al. discloses the manufacturing of such disc (Col. 4 Lines 7-54).

Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. US 6,381,208 B1, Gurer et al. US 6,177,133 B1 and Moynagh US 5,810,941. in view of Tsukagoshi et al. US 2002/0018438 A1.

Regarding claim 5, Abe et al. fail to teach an optical record carrier, wherein said relief structure comprises a groove structure having a wobble pattern holding the thickness variation data.

However, Tsukagoshi et al. teaches the use of a groove structure to hold data ([0021]). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of the optical record carrier as taught by Abe et al. and the teachings of the including data in a groove structure as taught by Tsukagoshi et al. to include thickness variation data in the wobble pattern for the benefit of more data density.

Regarding claim 10, Abe et al., Gurer et al. and Moynagh all fail to teach a method, wherein the method comprises forming the transparent layer by spin coating.

However, Tsukagoshi et al. teaches the creation of the transparent layers by spin coating ([0025]). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of the method of manufacturing the optical record carrier as

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taught by Abe et al. and the teachings of the method of manufacturing the transparent layer by spin coating as taught by Tsukagoshi et al. as a whole to spin coat the transparent layer for the benefit of creating a precise thickness of the transparent layer.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kezhen Shen whose telephone number is (571) 270-1815. The examiner can normally be reached on Monday-Friday 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kezhen Shen/
Examiner, Art Unit 2627

/Joseph H. Feild/
Supervisory Patent Examiner, Art
Unit 2627